

Release Cinnamaldehyde Behaviour and Mechanical Property of repellency Film with Insect Repellent Powder

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This study proposes insect repellent packages to counter the recent increase in damages caused by the infiltration of insects in food products during the distribution process. Fumed silica was impregnated with 10% insect repellent and cinnamaldehyde, and films based on polypropylene (PP) were prepared. TGA was used to analyze the amount of insect repellent and release behavior of the insect repellent powder and film, while TGA and HPLC were employed for the release behavior of cinnamaldehyde. Films were created using the insect repellent powder and PP, and measurements were taken for yield strength and elongation. PP films with 10% insect repellent powder were found to have characteristics similar to neat PP films, and thus considered to be compatible.

TGA was used to analyze the thermal stability of the repellent and insect repellent silica powder. With temperature increasing at 10 /min, measurements were taken from 30 to 800 . In addition to thermal stability, the amount of repellent impregnated was observed. Release behavior was analyzed through the head space method using LC (HP 1100series).